

A NEW SPECIES OF LAGORCHESTES (MARSUPIALIA)

By H. H. FINLAYSON

PLATES XXXIII AND XXXIV

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Lagorchestes asomatus n. sp.

External characters unknown; size, judged by the skull of the aged type, considerably smaller than in *L. hirsutus*, and therefore the smallest of the genus.

The species, which is founded upon the cranial characters of a single aged example of unknown sex, is sharply distinguished from other members of the genus by its enormous auditory bullae, and the great reduction of the premaxillary region and the incisor dentition. It is nearest to the Central Australian forms of *L. hirsutus* Gould, with which species comparison is chiefly made in the ensuing description.

Cranial form typically lagorchestine in its shortness and great breadth, and in the extreme height of the skull posteriorly, leading to a characteristic rapidly tapering, wedge-shaped outline. The upper profile descends more abruptly from the vertex to the nares and lambda, than in *hirsutus*.

Muzzle region shorter than in *hirsutus* and differing further in the exaggerated lateral expansion of the proximal maxillary portion, and the reduction both in width and depth of the distal premaxillary segment. The nasals are similar to those of *hirsutus* but are narrower anteriorly and more expanded posteriorly, though the latter is by no means commensurate with the expansion of the underlying muzzle. They terminate in a short, blunt point which overreaches the naso-premaxillary junction by only 2 mm. and coincides in dorsal view with the gnathion below. The surface of the nasals is almost flat throughout and their junction with the walls of the muzzle sharp and angular. In lateral view also the muzzle is very different from *conspicillatus* or *hirsutus* in its rapidly tapering form, the depth at L^3 being scarcely half that at the anteorbital foramen. The infranasal spur is almost absent from the premaxillae.

The interorbital region with its edges thin and sharp at the constriction and tapering posteriorly more rapidly than in *hirsutus*, almost as in *conspicillatus*. The constriction narrower than in the central race of *hirsutus* but equalled by the insular *dorrae*. The area is decidedly concave, but the hollow does not extend to the posterior nasal region, as in the other species.

The zygomatic outline as seen from above is very broad, the ratio, greatest breadth/basal length = .73 as in the widest skulls of *conspicillatus*. The anterior and posterior angles about as in *hirsutus*, but the maximum width still more posterior and the terminal posterior width markedly greater than the anterior, and the shape correspondingly different and nearer the average condition of *Thylogale*. The individual zygomata are stouter than in *hirsutus*, especially the squamosal element; the infrazygomatic process is equally large and is contributed chiefly by the maxilla. On the wall of the orbit, the lacrymal is narrower.

The braincase much as in *hirsutus* but its surface more rugose and pitted, and the vault decidedly lower.

The occipital area is broad and low to a greater degree than in any of the other species and resembles the *Petrogale* condition at its maximum. The para-occipital process upright, not recurved terminally as in *hirsutus*, and almost com-

pletely merging with the bulla anteriorly. Tympanic annulus very large and the free margin of the mastoid curved forward parallel to its lower border.

In the palatal aspect the anterior foramina are longer than in *hirsutus*. The palate is reduced anteriorly and is widest in its midlength. There are two large reniform vacuities, each 11 x 5 mm. ca., extending to within 3 mm. of the posterior margin and the space behind them is almost complete, not multi-perforate as in *hirsutus*. Posterior and anterior nares both narrower and shallower.

The parapterygoid fossa very deep and well defined but reduced to a mere crescentic slit by the encroachment of the bullae; the ectopterygoid ridge unusually well developed and thrust outwards almost at a right angle to the basiscranial axis. The alisphenoid bullae enormously inflated, more so than in any other member of the subfamily, and in absolute size exceeded in the Macropodidae only by *B. lesucuri* in the *Potoroinae*. The cubic capacities of the bulla in *B. lesucuri*, the present species, and *L. hirsutus*, are in the approximate ratio 334:236:81, and if allowance is made for the small size of the skull of the new species, the disparity between the first two volumes is considerably decreased.

The mandible presents an extreme phase of the lagorchestine trends towards shortened horizontal body of the ramus and lengthened ascending portion, the vertical height of the coronoid margin considerably exceeding the length of the body from the base of the coronoid to the incisor alveolus. Symphysis short and inferior dental foramen very small as in *hirsutus*; masseteric foramen smaller; condyle round and larger.

Dentition

Upper incisors remarkable for their very small size, the antero-posterior length of the series 5.3 mm. as against 7.75 mm. in *hirsutus* of similar wear; the teeth much worn but apparently similarly proportioned and disposed in the pre-maxillae. Canine about 2 mm. long, rooted just posterior to the suture and lying nearly prone upon the diastemal margin and probably functionless. P⁴ an extremely large tooth, 6.3 mm. long as against 4.8-5.1 mm. in similarly worn *hirsutus*; too worn for the finer details of structure to be made out, but clearly of the same general type as in *conspicillatus* and *hirsutus*, e.g., parallel-sided, scarcely wider posteriorly than distally, a well-marked talon and internal ledge running the whole length of the tooth, a fossette on its posterior margin, a blade showing vestiges of four shallow vertical grooves externally and a continuous trenchant edge lying buccal to the midline of the tooth. The forward drift of the cheek teeth with advancing age (unusually marked in *Lagorchestes*) reaches a maximum in this species, P⁴ occupying a position nearly 4 mm. anterior to its point of eruption; the P⁴-I³ diastema is thereby reduced to 7 mm., little more than the length of the former tooth.

The molar rows are nearly as long as in the decidedly larger *hirsutus* skull, and the individual teeth are somewhat heavier. The crown pattern, so far as it can be made out, is similar, but the tooth rows are more arched and the anterior members project laterally beyond the alveolar margin to a much greater extent and their outer cusps are plainly visible, in dorsal view projecting beyond the walls of the muzzle. Both the latter features are probably accentuated by the age of the skull and the forward drift of the cheek teeth, above mentioned.

The lower incisors are much reduced (though relatively less so than the upper); narrow, delicate and nearly parallel-sided in their mid-course. Lower P₄ 4.9 mm.; without talon or ledge but with four shallow grooves on both surfaces. Lower molars much narrower than upper; relatively more so than in *hirsutus*.

Dimensions

Greatest length, 65.8; basal length, 58.7; zygomatic breadth, 42.9; nasals: length, 27.6; nasals: greatest breadth, 9.9; nasals: least breadth, 4.3; nasals:

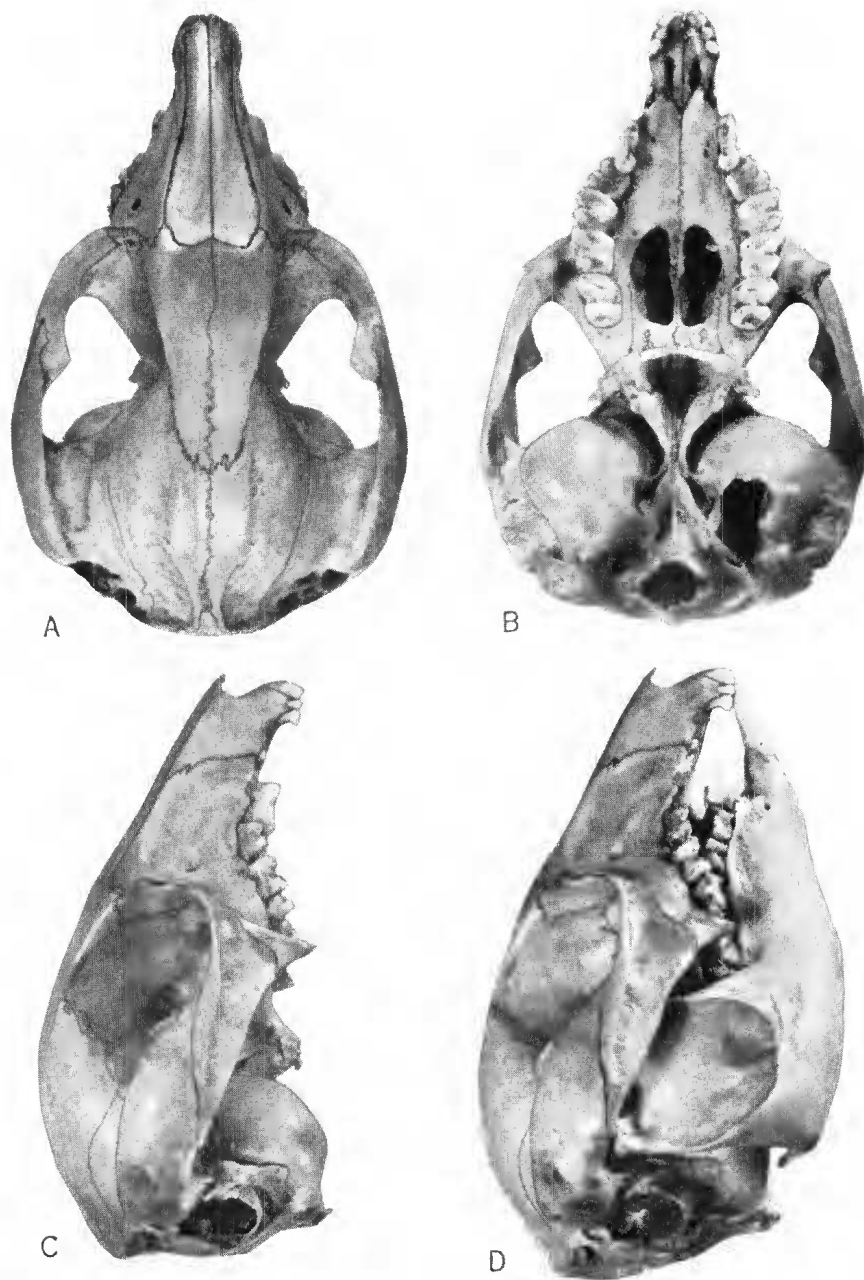
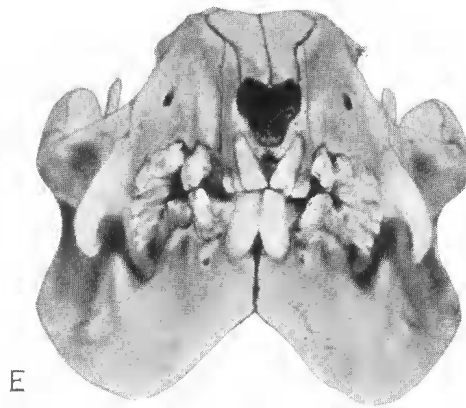


Photo by H. H. Finlayson

Fig. A, B, C—Dorsal, palatal, lateral aspects of skull of *Lagorchestes asomatus* sp. nov.
(x 1.1 ca.).

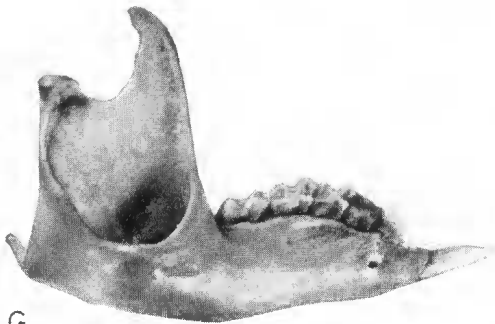
Fig. D—Lateral aspect of same with mandible *in situ* (x 1.1 ca.).



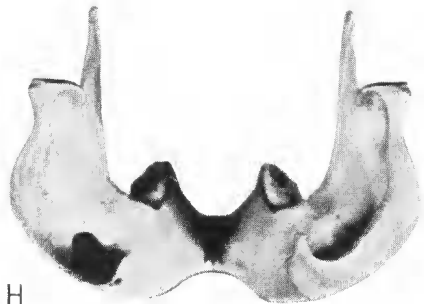
E



F



G



H

Photo by H. H. Finlayson

Fig. E, F—Anterior and posterior aspects of skull of *Lagorchestes asomatus* sp. nov.
(x 1.2 ca.).

Fig. G, H—Lateral and posterior aspects of mandible of same (x 1.2 ca.).

overhang, 2.2; depth of muzzle,⁽¹⁾ 9.7; constriction, 9.6; palate: length, 36.7; palate: breadth inside M², 11.2; anterior palatal foramen, 4.0; diastema, 7.1; bulla, 14.4 x 14.0; basicranial axis, 21.5; basifacial axis, 39.5; facial index, 183; mandible: greatest length, 45.0; mandible: greatest breadth, 41.9; mandible: greatest perpendicular height, 30.5; antero-posterior length of upper incisors (worn), 5.3; P⁴, 6.3 x 2.3; M^{s1-3}, 13.2; M^{s1-4}, 19.0; M⁴, 5.7 x 5.2; lower I₁, 9.2 x 2.6.

Type—Aged skull of unknown sex. South Australian Museum Registered Number, M3710. Collected by Michael Terry between Mount Farewell and Lake Mackay in Central Australia, at longitude 129° 30' east and latitude 22° 15' south approx. The animal was taken in the flesh, but only the skull preserved.

⁽¹⁾ At anterior margin of P⁴.